Section 1: PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Product name</th>
<th>15% Tetramethylammonium Hydroxide Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product code</td>
<td>203-09832,207-09835,205-09831</td>
</tr>
</tbody>
</table>

Manufacturer
FUJIFILM Wako Pure Chemical Corporation
1-2 Doshomachi 3-Chome
Chuo-ku, Osaka 540-8605, Japan
Phone: +81-6-6203-3741
Fax: +81-6-6203-5964

Supplier
FUJIFILM Wako Pure Chemical Corporation
1-2 Doshomachi 3-Chome, Chuo-ku, Osaka 540-8605, Japan
Phone: +81-6-6203-3741
Fax: +81-6-6203-2029

Emergency telephone number
+81-6-6203-3741 / +81-3-3270-8571

Recommended uses and restrictions on use
For research use only

Section 2: HAZARDS IDENTIFICATION

GHS classification

Classification of the substance or mixture

| Acute toxicity - Oral                     | Category 3 |
| Acute toxicity - Dermal                   | Category 3 |
| Skin corrosion/irritation                 | Category 1 |
| Serious eye damage/eye irritation          | Category 1 |
| Specific target organ toxicity (single exposure) | Category 1 |
| Category 1 nervous system                  |            |
| Specific target organ toxicity (repeated exposure) | Category 1 |
| Category 1 nervous system                  |            |

Pictograms

Signal word
Danger

Hazard statements
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage
H301 - Toxic if swallowed
H311 - Toxic in contact with skin
H370 - Causes damage to the following organs: nervous system
H372 - Causes damage to the following organs through prolonged or repeated exposure: nervous system

Precautionary statements-(Prevention)
- Wash face, hands and any exposed skin thoroughly after handling
- Do not eat, drink or smoke when using this product
- Wear protective gloves/protective clothing/eye protection/face protection
- Do not breathe dust/fume/gas/mist/vapors/spray
Precautionary statements-(Response)
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Immediately call a POISON CENTER or doctor/physician
- Call a POISON CENTER or doctor/physician if you feel unwell.
- Wash contaminated clothing before reuse.
- IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
  • Rinse mouth.
  • Do NOT induce vomiting.

Precautionary statements-(Storage)
- Store locked up.

Precautionary statements-(Disposal)
- Dispose of contents/container to an approved waste disposal plant

Others
Other hazards Not available

### Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Weight-%</th>
<th>Molecular weight</th>
<th>ENCS</th>
<th>ISHL No.</th>
<th>CAS RN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>84.0-86.0</td>
<td>18.02</td>
<td>N/A</td>
<td>N/A</td>
<td>7732-18-5</td>
</tr>
<tr>
<td>Tetramethylammonium Hydroxide</td>
<td>14.0-16.0</td>
<td>91.15</td>
<td>(2)-186</td>
<td>公表</td>
<td>75-59-2</td>
</tr>
</tbody>
</table>

Impurities and/or Additives: Not applicable

### Section 4: FIRST AID MEASURES

**Inhalation**
Remove to fresh air. If symptoms persist, call a physician.

**Skin contact**
Wash off immediately with soap and plenty of water. If symptoms persist, call a physician.

**Eye contact**
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediate medical attention is required.

**Ingestion**
Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately. Do not induce vomiting without medical advice.

**Protection of first-aiders**
Use personal protective equipment as required.

### Section 5: FIRE FIGHTING MEASURES

**Suitable extinguishing media**
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment

**Unsuitable extinguishing media**
No information available

**Specific hazards arising from the chemical product**
Thermal decomposition can lead to release of irritating and toxic gases and vapors.

**Special extinguishing method**
No information available

**Special protective actions for fire-fighters**
Use personal protective equipment as required. Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.
Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
For indoor, provide adequate ventilation process until the end of working. Deny unnecessary entry other than the people involved by, for example, using a rope. While working, wear appropriate protective equipments to avoid adhering it on skin, or inhaling the gas. Work from windward, and retract the people downwind.

Environmental precautions
To be careful not discharged to the environment without being properly handled waste water contaminated.

Methods and materials for contaminant and methods and materials for cleaning up
Absorb dry sand, earth, sawdust and the waste. Collect empty container that can be sealed.

Recovery, neutralization
No information available

Secondary disaster prevention measures
Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: HANDLING AND STORAGE

Handling
Technical measures
Avoid contact with acidic substances Use with local exhaust ventilation.

Precautions
Do not rough handling containers, such as upsetting, falling, giving a shock, and dragging. Prevent leakage, overflow, and scattering. Not to generate steam and dust in vain. Seal the container after use. After handling, wash hands and face, and then gargle. In places other than those specified, should not be smoking or eating and drinking. Should not be brought contaminated protective equipment and gloves to rest stops. Deny unnecessary entry of non-emergency personnel to the handling area.

Safety handling precautions
Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.

Storage
Safe storage conditions
Storage conditions
Store away from sunlight in well-ventilated place at room temperature (preferably cool).
Keep container tightly closed. Store locked up.

Safe packaging material
Polyethylene

Incompatible substances
Acidic substances

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls
In case of indoor workplace, seal the source or use a local exhaust system. Provide the safety shower facility, and hand- and eye-wash facility. And display their position clearly.

Exposure limits
This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Personal protective equipment
Respiratory protection
Protective mask
Hand protection
Impermeable protective gloves
Eye protection
protective eyeglasses or chemical safety goggles
Skin and body protection
Long-sleeved work clothes

General hygiene considerations
Handle in accordance with good industrial hygiene and safety practice.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Form
Color
colorless
Turbidity
clear
Appearance
liquid
Odor: characteristic odor
Melting point/freezing point: No data available
Boiling point, initial boiling point and boiling range: No data available
Flammability: No data available
Evaporation rate: No data available
Flammability (solid, gas): No data available
Upper/lower flammability or explosive limits:
  Upper: No data available
  Lower: No data available
Flash point: No data available
Auto-ignition temperature: No data available
Decomposition temperature: No data available
pH: strongly basic
Viscosity (coefficient of viscosity): No data available
Dynamic viscosity: No data available
Solubilities: water and ethanol : at the rate of any miscible.
n-Octanol/water partition coefficient: (log Pow): No data available
Vapour pressure: No data available
Specific Gravity / Relative density: 1.012
Vapour density: No data available
Particle characteristics: No data available

Section 10: STABILITY AND REACTIVITY

Stability

  Reactivity: No data available
  Chemical stability: Shows a strongly basic, and absorbs carbon dioxide from the air.

Hazardous reactions
None under normal processing

Conditions to avoid
Extremes of temperature and direct sunlight

Incompatible materials
Acidic substances

Hazardous decomposition products
Carbon monoxide (CO), Carbon dioxide (CO2), Nitrogen oxides (NOx)

Section 11: TOXICOLOGICAL INFORMATION

Since data of the mixture is not available, data as each components are described.

Acute toxicity

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetramethylammonium</td>
<td>34 - 50 mg/kg</td>
<td>112 mg/kg</td>
<td>N/A</td>
</tr>
<tr>
<td>Hydroxide</td>
<td>( Rat )</td>
<td>( Rat )</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Acute toxicity -oral- information</th>
<th>Acute toxicity -dermal- information</th>
<th>Acute toxicity -inhalation gas- information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetramethylammonium</td>
<td>Based on the NITE GHS classification results.</td>
<td>Based on the NITE GHS classification results.</td>
<td>Based on the NITE GHS classification results.</td>
</tr>
<tr>
<td>Hydroxide</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Acute toxicity -inhalation vapor- information</th>
<th>Acute toxicity -inhalation dust- information</th>
<th>Acute toxicity -inhalation mist- information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetramethylammonium</td>
<td>Based on the NITE GHS classification results.</td>
<td>Based on the NITE GHS classification results.</td>
<td>Based on the NITE GHS classification results.</td>
</tr>
<tr>
<td>Hydroxide</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Skin irritation/corrosion

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Skin corrosion/irritation source information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetramethylammonium</td>
<td>Based on the NITE GHS classification results.</td>
</tr>
<tr>
<td>Hydroxide</td>
<td></td>
</tr>
</tbody>
</table>

Serious eye damage/ irritation

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Serious eye damage/irritation source information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetramethylammonium</td>
<td></td>
</tr>
<tr>
<td>Hydroxide</td>
<td></td>
</tr>
</tbody>
</table>
Tetramethylammonium Hydroxide

**Respiratory or skin sensitization**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Respiratory or Skin sensitization source information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetramethylammonium Hydroxide</td>
<td>Based on the NITE GHS classification results.</td>
</tr>
</tbody>
</table>

**Reproductive cell mutagenicity**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>germ cell mutagenicity source information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetramethylammonium Hydroxide</td>
<td>Based on the NITE GHS classification results.</td>
</tr>
</tbody>
</table>

**Carcinogenicity**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Carcinogenicity source information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetramethylammonium Hydroxide</td>
<td>Based on the NITE GHS classification results.</td>
</tr>
</tbody>
</table>

**Reproductive toxicity**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Reproductive toxicity source information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetramethylammonium Hydroxide</td>
<td>Based on the NITE GHS classification results.</td>
</tr>
</tbody>
</table>

**STOT-single exposure**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>STOT -single exposure- source information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetramethylammonium Hydroxide</td>
<td>Based on the NITE GHS classification results.</td>
</tr>
</tbody>
</table>

**STOT-repeated exposure**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>STOT -repeated exposure- source information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetramethylammonium Hydroxide</td>
<td>Based on the NITE GHS classification results.</td>
</tr>
</tbody>
</table>

**Aspiration hazard**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Aspiration Hazard source information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetramethylammonium Hydroxide</td>
<td>Based on the NITE GHS classification results.</td>
</tr>
</tbody>
</table>

---

### Section 12: ECOLOGICAL INFORMATION

Since data of the mixture is not available, data as each components are described.

#### Ecotoxicity

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Algae/aquatic plants</th>
<th>Fish</th>
<th>Crustacea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetramethylammonium Hydroxide</td>
<td>N/A</td>
<td>N/A</td>
<td>LC50: 3mg/L/48hr</td>
</tr>
</tbody>
</table>

**Other data**

- No data available

- **Persistence and degradability**
  - Degree of decomposition: 96% by BOD (METI Existing chemical safety inspections)

- **Bioaccumulative potential**
  - No information available

- **Mobility in soil**
  - No information available

- **Hazard to the ozone layer**
  - No information available

---

### Section 13: DISPOSAL CONSIDERATIONS

#### Waste from residues

Disposal should be in accordance with applicable regional, national and local laws and regulations.

#### Contaminated container and contaminated packaging

Disposal should be in accordance with applicable regional, national and local laws and regulations.

---

### Section 14: TRANSPORT INFORMATION

**ADR/RID**

- **UN number**: UN1835
- **Proper shipping name**: Tetramethylammonium hydroxide solution
- **UN classification**: 8
- **Subsidiary hazard class**: II
- **Packing group**: I
- **Marine pollutant**: Not applicable
IMDG
UN number: UN1835
Proper shipping name: Tetramethylammonium hydroxide solution
UN classification: 8
Subsidiary hazard class: Not applicable
Packing group: II
Marine pollutant (Sea): Not applicable
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: No information available

IATA
UN number: UN1835
Proper shipping name: Tetramethylammonium hydroxide solution
UN classification: 8
Subsidiary hazard class: Not applicable
Packing group: II
Environmentally Hazardous Substance: Not applicable

Section 15: REGULATORY INFORMATION

International Inventories
EINECS/ELINCS: -
TSCA: -

Japanese regulations
Fire Service Act: Not applicable
Poisonous and Deleterious Substances Control Law: Poisonous Substances 2nd. Grade
Industrial Safety and Health Act: Not applicable
Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc: Priority Assessment Chemical Substances (Law Article 2, Para.5)
Regulations for the carriage and storage of dangerous goods in ship: Corrosive Substances (Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1)
Civil Aeronautics Law: Corrosive Substances (Ordinance Art.194, MITL Notification for Air Transportation of Explosives etc., Attached Table 1)
Pollutant Release and Transfer Register Law: Not applicable
Export Trade Control Order: Not applicable

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Poisonous and Deleterious Substances Control Law</th>
<th>Industrial Safety and Health Act Substances (Law Article 57-2)</th>
<th>Pollutant Release and Transfer Register Law</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetramethylammonium Hydride 75-59-2 (14.0-16.0)</td>
<td>Applicable</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Section 16: OTHER INFORMATION

Key literature references and sources for data etc.
NITE: National Institute of Technology and Evaluation (JAPAN)
http://www.safe.nite.go.jp/japan/db.html
IATA dangerous Goods Regulations
RTECS: Registry of Toxic Effects of Chemical Substances
Japan Industrial Safety and Health Association GHS Model SDS
Chemical Dictionary, Kyoritsu Publishing Co., Ltd.

Disclaimer
This SDS is according to JIS Z 7253: 2019. The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

GHS Classification is according to JIS Z7252(2019). *JIS: Japanese Industrial Standards

End of Safety Data Sheet